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IS 4975 (1986): Elevators, Dental, No. 1, 2 and 3 [MHD 8: Dentistry]



“ज्ञान से एक नये भारत का निर्माण”

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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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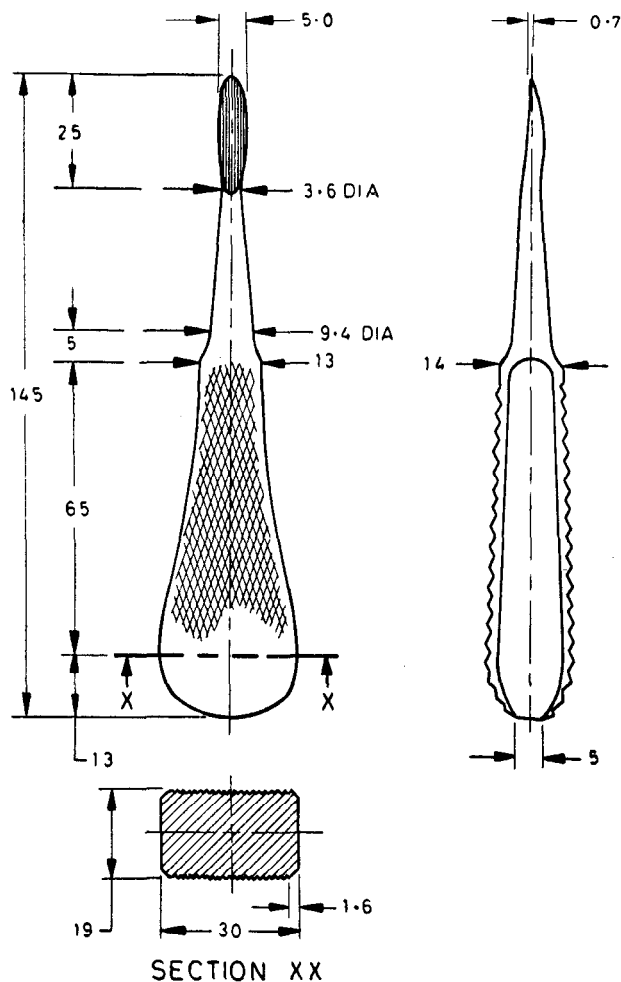


Indian Standard

SPECIFICATION FOR
ELEVATORS, DENTAL, NO. 1, 2 AND 3

(First Revision)

1. **Scope** — This standard specifies material, dimensions and other requirements for dental elevators, No. 1, 2 and 3.
2. **Material** — Stainless steel conforming to Designation 30Cr13 of IS : 6603-1972 'Specification for stainless steel bars and flats'.
3. **Shape and Dimensions** — As shown in Fig. 1 and 2.



All dimensions in millimetres.

FIG. 1 ELEVATOR, DENTAL, NO. 1

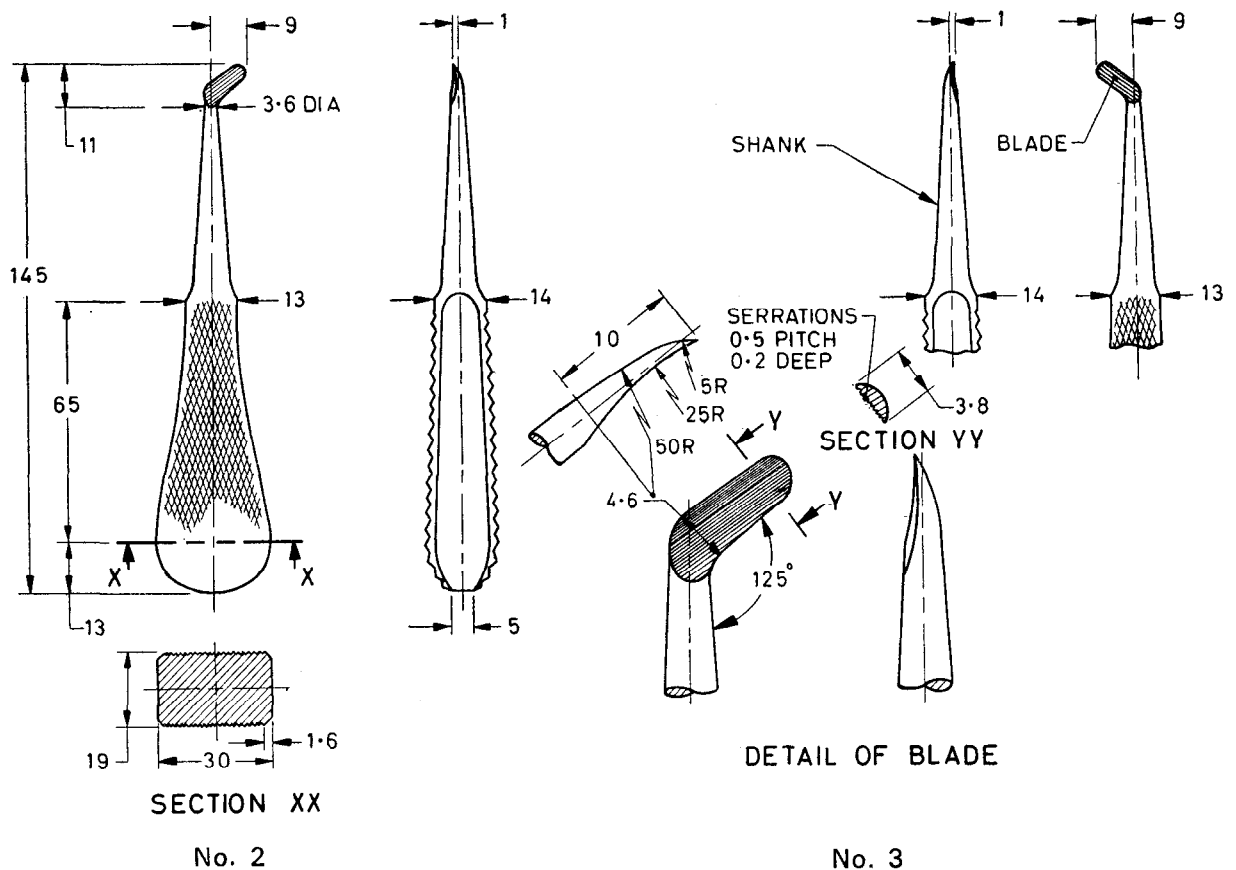
3.1 Tolerances on linear dimensions shall be as given below:

- a) ± 0.05 mm on dimensions up to 2.0 mm,
- b) ± 0.1 mm on dimensions above 2.0 mm and up to 5.0 mm,
- c) ± 0.2 mm on dimensions above 5.0 mm and up to 20.0 mm,
- d) ± 0.5 mm on dimensions above 20.0 mm and up to 50.0 mm,
- e) ± 1.0 mm on dimensions above 50.0 mm and up to 100.0 mm, and
- f) ± 2.0 mm on dimensions above 100.0 mm.

Adopted 30 October 1987

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All dimensions in millimetres.
FIG. 2 ELEVATORS, DENTAL, No. 2 AND 3

3.2 Tolerance on angular dimension shall be $\pm 2^\circ$.

4. Heat Treatment — The instruments shall be uniformly hardened and tempered to a hardness of 400 to 480 HV, when tested in accordance with IS : 1501 (Part 1)-1984 'Method for Vickers hardness test for metallic materials: Part 1 HV 5 to HV 100 (*second revision*)',

5. Workmanship

5.1 The handle shall be flat. Knurling on the handle shall be in accordance with IS : 3403-1981 'Dimensions for knurls (*first revision*)'.

5.2 The serrations on the blade shall be in accordance with the relevant requirements of Section 1 of IS : 3642-1978 'General requirements for surgical instruments (*first revision*)', the pitch and depth of the serrations being 0.5 mm and 0.2 mm respectively.

5.3 All the edges shall be even, free from pits, and except for the cutting edge, rounded and nowhere sharp.

6. Surface Condition

6.1 **General** — All surfaces shall be free from pores, crevices and grinding marks. The instruments shall be supplied free from residual scale, acid, grease and grinding and polishing materials. Compliance with these requirements shall be checked by inspection using normal vision (corrected, if necessary).

6.2 **Surface Finish** — The surface finish shall be one of, or a combination of the following:

- Mirror polished;
- Reflection-reducing, for example, satin finish, matt black finish; and
- An applied surface coating, for example, for insulation purposes.

Note — The satin finish should be effected by an appropriate procedure, such as grinding, brushing, electropolishing and, in addition, satin finishing (glass beading or satin brushing). The finish should be uniform and smooth and it should reduce glare.

Instruments of mirror finish should be adequately ground to remove all surface imperfections and polished to remove grinding marks, resulting in a mirror finish. The mirror finish should be effected by an appropriate procedure, such as polishing, brushing, electropolishing, and mirror buffing.

6.3 Passivation and Final Treatment — The instruments shall be treated by a suitable passivation process, for example, by electropolishing or by treatment with 10 percent (v/v) nitric acid solution for not less than 30 min at a temperature not less than 10°C and not exceeding 60°C. The instruments shall then be rinsed in water and dried in hot air.

7. Tests

7.1 Proof Load Test — The handle of the elevator shall be fixed in a clamp in such a manner that the junction of the shank and the blade protrudes out of the grip in the horizontal plane and the concave or serrated surface of the blade faces upwards. A load of 250 N (25 kgf approximately) shall then be suspended from about the middle of the blade for 2 minutes. The instrument shall show no sign of damage after the completion of the test.

7.2 Corrosion Resistance Test — The instruments shall be tested in accordance with IS : 7531-1975 'Method for boiling and autoclaving test for corrosion resistance of stainless steel surgical instruments'. They shall show no sign of corrosion after the test.

8. Marking and Packing

8.1 The elevators shall be legibly and indelibly marked with the manufacturer's name, initials or recognized trade-mark, the words 'stainless steel' or letters 'ss'; and the country of manufacture.

8.2 The cutting edge of the instruments shall be preserved in plastipeel or any suitable PVC airdrying type dip-coating. Each instrument shall be put in a polyethylene bag or wrapped in wax paper. The instruments shall then be packed in cartons in accordance with the current trade practice.

8.2.1 Alternatively, the instruments may be packed as agreed to between the purchaser and the supplier.

8.3 The packages shall be marked with the name and designation number of the instrument; the manufacturer's name, initials or recognized trade-mark; the words 'stainless steel'; and the country of manufacture.

8.4 Certification Marking — Details available with the Bureau of Indian Standards.

9. Sampling — Sampling procedure and acceptance criteria for the instruments shall be as agreed to between the purchaser and the supplier. A recommended scheme for the same is given in Appendix A.

APPENDIX A

(Clause 9)

SAMPLING SCHEME AND CRITERIA FOR CONFORMITY FOR ELEVATORS, DENTAL

A-1. Lot — In any consignment, all the instruments of the same designation numbers, produced from the identical material under similar conditions and having the same surface finish shall constitute a lot.

A-2. The number of instruments to be selected from each lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 1.

TABLE 1 SCALE OF SAMPLING

(Clauses A-2, A-3.1 and A-3.2)

Lot Size (1)	Sample Size (2)	Sub-Sample Size (3)
Up to 15	2	1
16 to 50	3	1
51 to 150	5	2
151 and above	8	3

A-2.1 These instruments shall be selected from the lot at random and in order to ensure randomness of selection, procedures given in IS : 4905-1968 'Methods for random sampling' may be followed.

A-3. Number of Tests and Criteria for Conformity

A-3.1 All the instruments selected according to col 1 and 2 of Table 1 shall be examined for shape and dimensions, workmanship, and surface condition (visual). An instrument in the sample failing to meet any of these requirements shall be considered as defective. The lot shall be considered as conforming to these requirements if no defective is found in the sample.

A-3.2 The lot having been found satisfactory according to **A-3.1** shall be further tested for other requirements. For this purpose, a sub-sample of size given in col 3 of Table 1 shall be taken. These instruments in the sub-sample may be selected from those already examined according to **A-3.1**. Each instrument in the sub-sample shall be subjected to hardness, proof load and corrosion resistance tests. The lot shall be declared as conforming to the requirements of the specification if none of the instruments in the sub-sample fails in any of these tests.

EXPLANATORY NOTE

This standard was first issued in 1968. In this revision, tolerances on various dimensions have been specified, a recommended scheme of sampling has been added and the clauses on surface condition have been modified besides incorporating certain other modifications.

This standard does not include all types and sizes of the elevators which are commercially available; it covers only those which are suitable for general purposes in dental surgery.